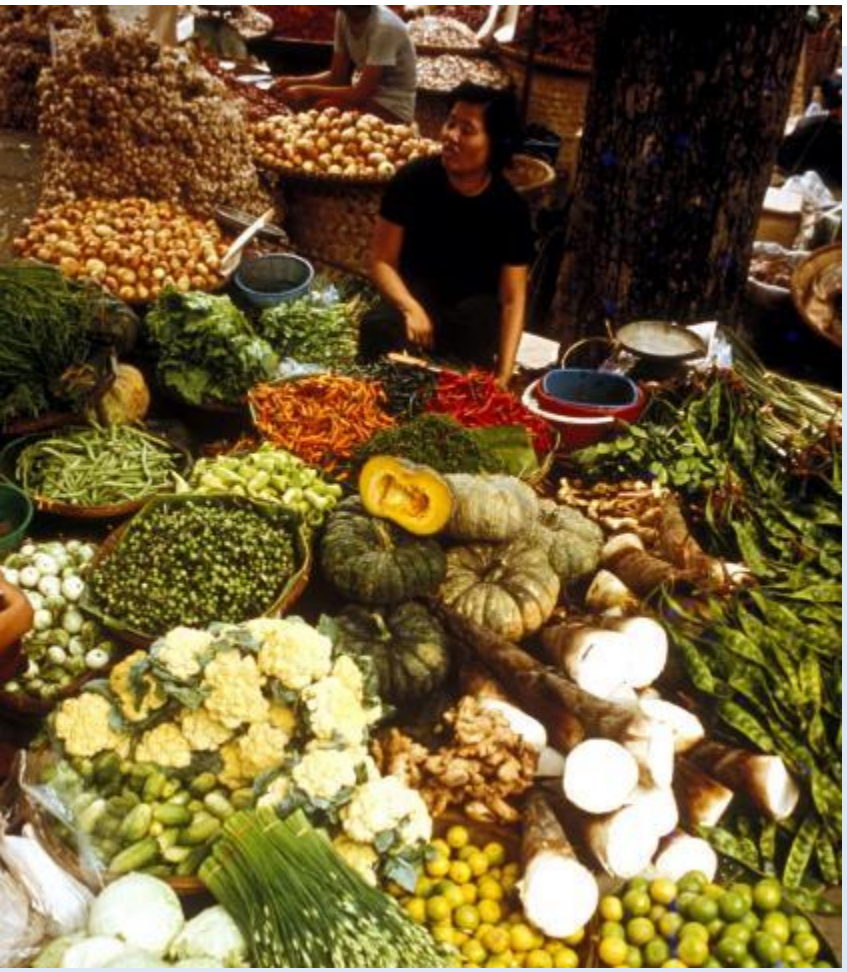
Food and Agriculture Organization of the United Nations

"The genetic variation within livestock populations provides the raw material both for evolution through natural selection in response to changing conditions and for human-managed genetic improvement programmes"

Preparation of the Third Report on the State of the World's Animal Genetic Resources for Food and Agriculture

Turin | 11 September 2024

Paul Boettcher, Roswitha Baumung, Gregoire Leroy and Laurens van der Giessen



- Few things in life are more important than food
  - sustains the existence of humankind
  - contributes to our unalienable right to life
  - helps define our cultures
- International cooperation is required to ensure continued access to sufficient and healthy food
  - countries differ vastly in their capacity for production
  - agriculture consumes immense natural resources
- The United Nations has a logical role to play
  - food and its production contribute to peace
- The Food and Agriculture Organization (FAO) is the specialized agency of the United Nations that leads international efforts to defeat hunger

FAO

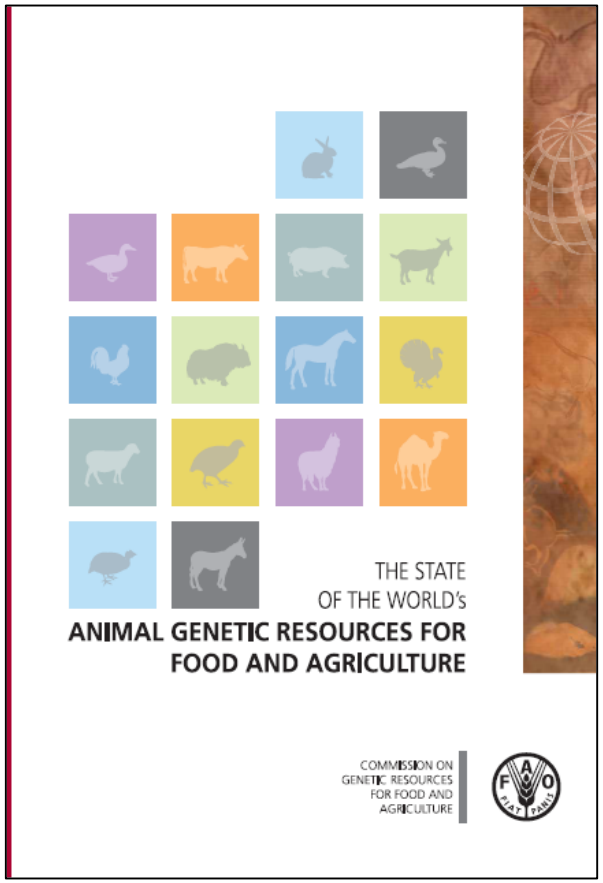
Food and Agriculture Organization of the United Nations

- **FAO** was established in 1945
- **194 Member Countries,** two associate members and one member Organization
- Headquarters in **Rome,** Italy
- Presence in more than **130 countries**
- FAO supports governments and their stakeholders in areas of development, in the design of adequate policies, programmes and legal frameworks to promote food security and nutrition

Where do animal genetic resources fit in?

- Essential part of biological basis for world food security
  - one billion people rely directly on livestock for major proportion of livelihood
- Diverse resource base critical to eradicate world hunger
  - adaptation to current and future environmental constraints
  - “raw material” for breeders to make genetic improvement
- International public good
  - logical role of FAO in global coordination

Why is international action needed?



- Diversity of animal genetic resources is decreasing
  - About 10% of known breeds are extinct
  - 20% of breeds are at risk
  - Status is unknown for about 60% of breeds
- Most developing countries lack capacity for optimal AnGR management
  - characterization, inventory & monitoring, breeding & conservation
  - development of policies & legal structures
  - structures for national, regional & international cooperation
  - awareness and interest by national research institutes and NGO

Commission on Genetic Resources for Food and Agriculture

- The Commission on Genetic Resources for Food and Agriculture is a permanent forum where governments discuss and negotiate matters relevant to biodiversity for food and agriculture
  - 178 countries and EU
- The main objectives of the Commission are to ensure the conservation and sustainable utilization of genetic resources for food and agriculture, as well as the fair and equitable sharing of benefits derived from their use, for present and future generations
  - Decision-making body
- Intergovernmental Technical Working Group on Animal Genetic Resources for Food and Agriculture
  - Technical body to advise the Commission on scientific issues
- Both groups meet every two years in Rome

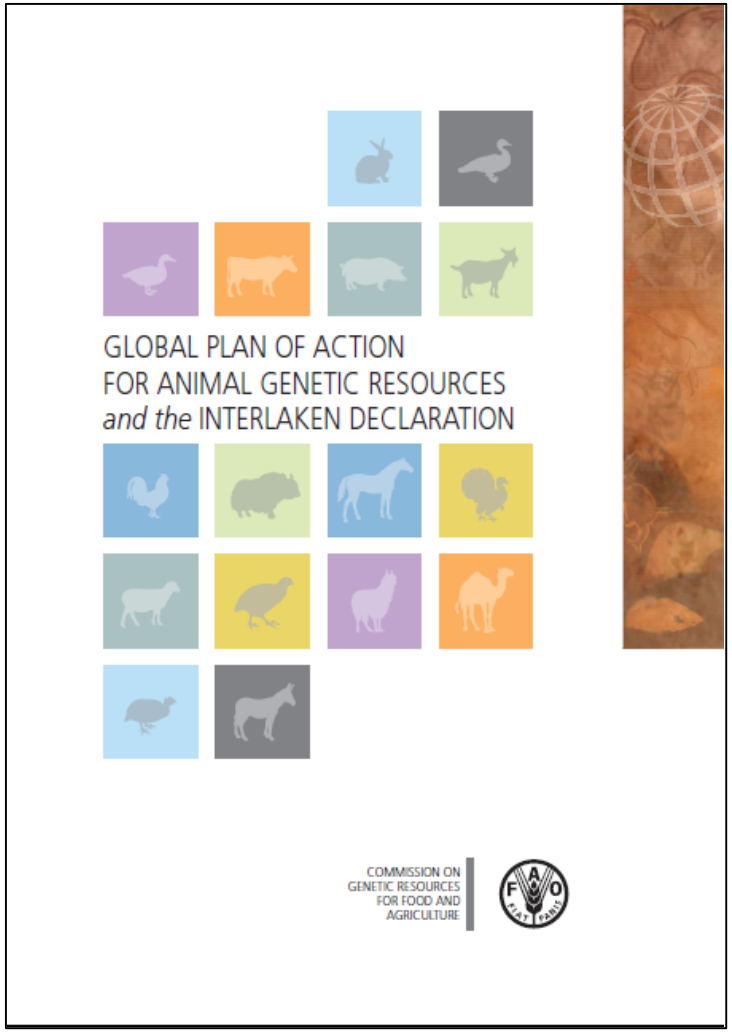
Global Plan of Action

FAO work in animal genetics is guided by the
GLOBAL PLAN OF ACTION FOR ANIMAL GENETIC RESOURCES

Internationally negotiated policy for management of livestock genetic diversity

23 Strategic Priorities for Action in 4 Strategic Priority Areas:

1. Characterization, Inventory and Monitoring
2. Sustainable Use and Development
3. Conservation
4. Policies, Institutions and Capacity-building



Global Plan of Action: Example

Strategic Priority 8	Actions
Establish or strengthen *in situ* conservation programmes	1. Set and regularly review *in situ* conservation priorities and goals
	2. Encourage the development and implementation of national and regional *in situ* conservation programmes for breeds and populations that are at risk
	3. Promote policies and means to achieve the sustainable use of a diversity of local breeds, without the need for support from public funds

FAO's contribution to the Global Plan of Action

- Main responsibility for implementation rests with national governments
  - based on "National Strategies and Action Plans"
- Need for international cooperation and support to developing countries
- International organizations to provide support
- FAO provides technical support and monitors implementation

Monitoring implementation of the Global Plan of Action

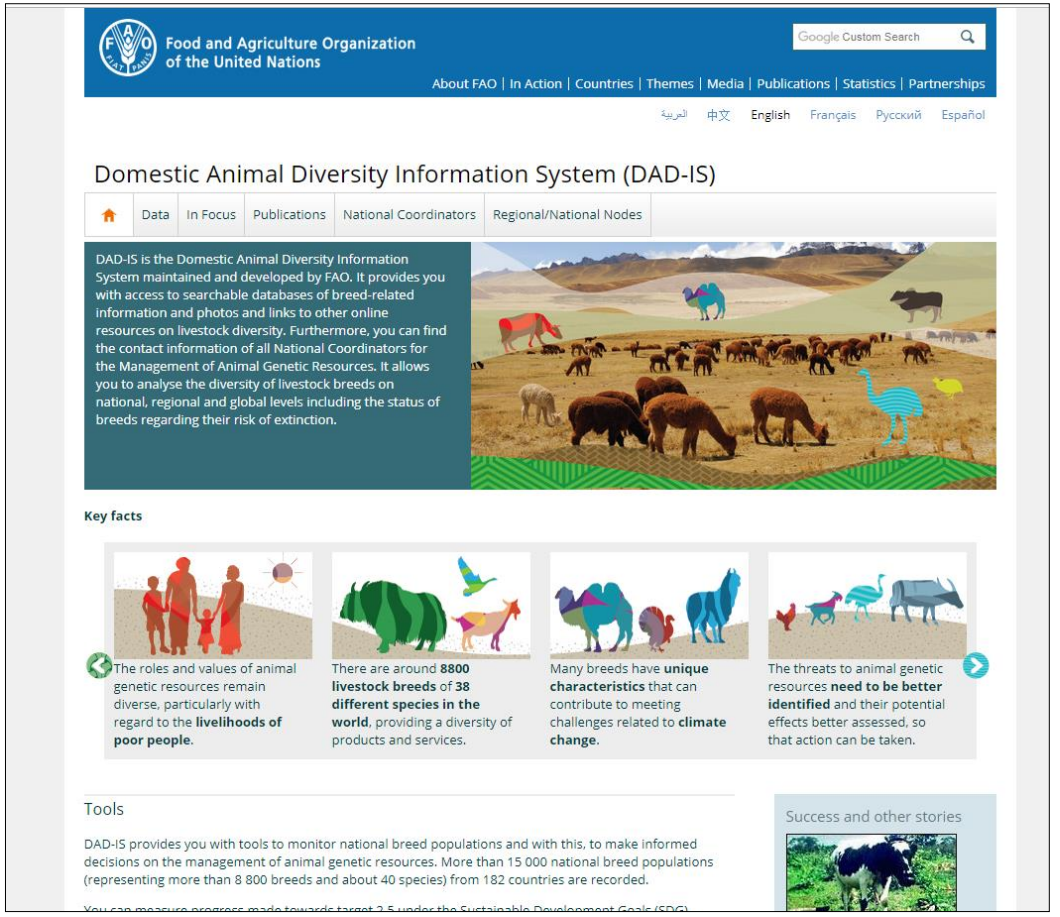
- FAO monitors implementation in two ways:
  1. Status of the animal genetic resources
  2. Status of countries' capacity to manage the genetic diversity

Monitoring the status of the animal genetic resources

- DAD-IS = Domestic Animal Diversity Information System
- Communication and information tool to manage animal genetic resources
- Online interface to the FAO Global Databank on Livestock Breeds
- Contains information on:
  - Nearly 9000 breeds
  - >15,000 national breed populations
  - 38 species

Monitoring the status of the animal genetic resources

- Breed-related information
  - Population size = indicator for monitoring
  - Breed description
  - Geographic distribution
  - History
  - Special traits and characteristics
  - Summary statistics
  - Conservation programmes
  - >4000 images



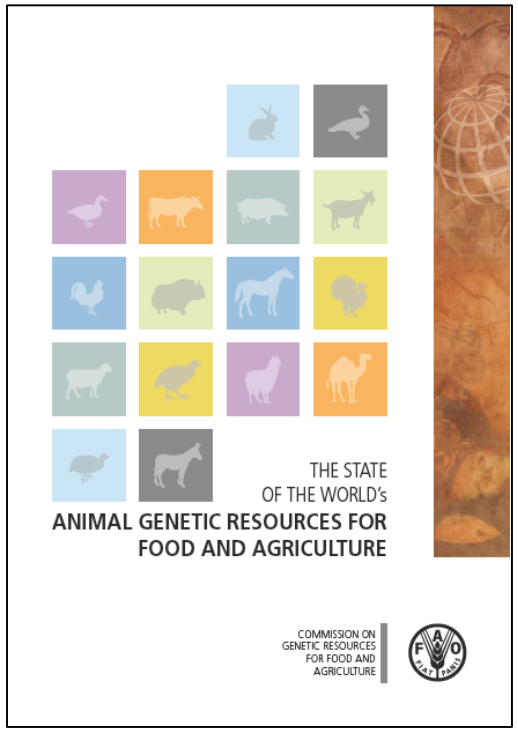
What is the source of the information?

- Data are considered “official” country data
- Only government-nominated “National Coordinators” have write access to DAD-IS
  - Positive: authoritative source
  - Negative: reduced amount of data

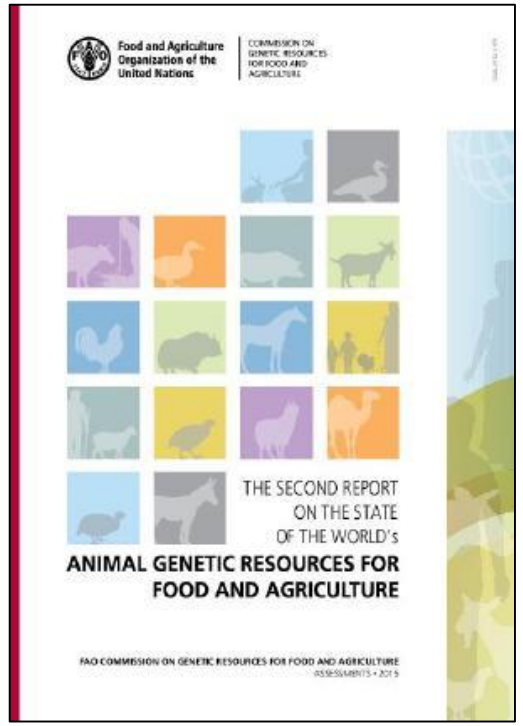
What is the role of DAD-IS in monitoring?

- Preparation of “Status and Trends” reports
  - Every two years FAO summarizes the breed data
  - Reports to the Working Group and Commission
- Data for Sustainable Development Goal indicators
  - Indicator 2.5.1 : *ex situ* conservation
  - Indicator 2.5.2 : *in situ* conservation and sustainable use

How does FAO monitor capacity to manage genetic resources?

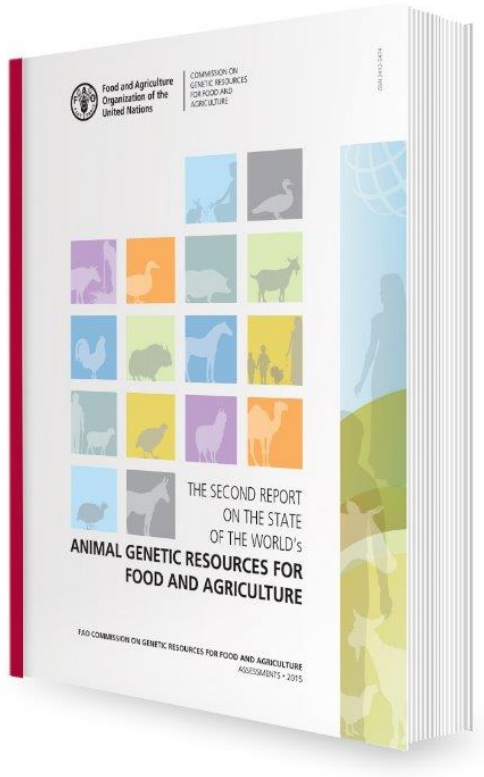


- Every ≈10 years FAO undertakes a global assessment of animal genetic resources
- Results are compiled and published as *Reports on the State of the World's Animal Genetic Resources for Food and Agriculture*
- Two such reports have been published:
  - First Report in 2007
  - Second Report in 2015
- Third Report is under preparation for 2027

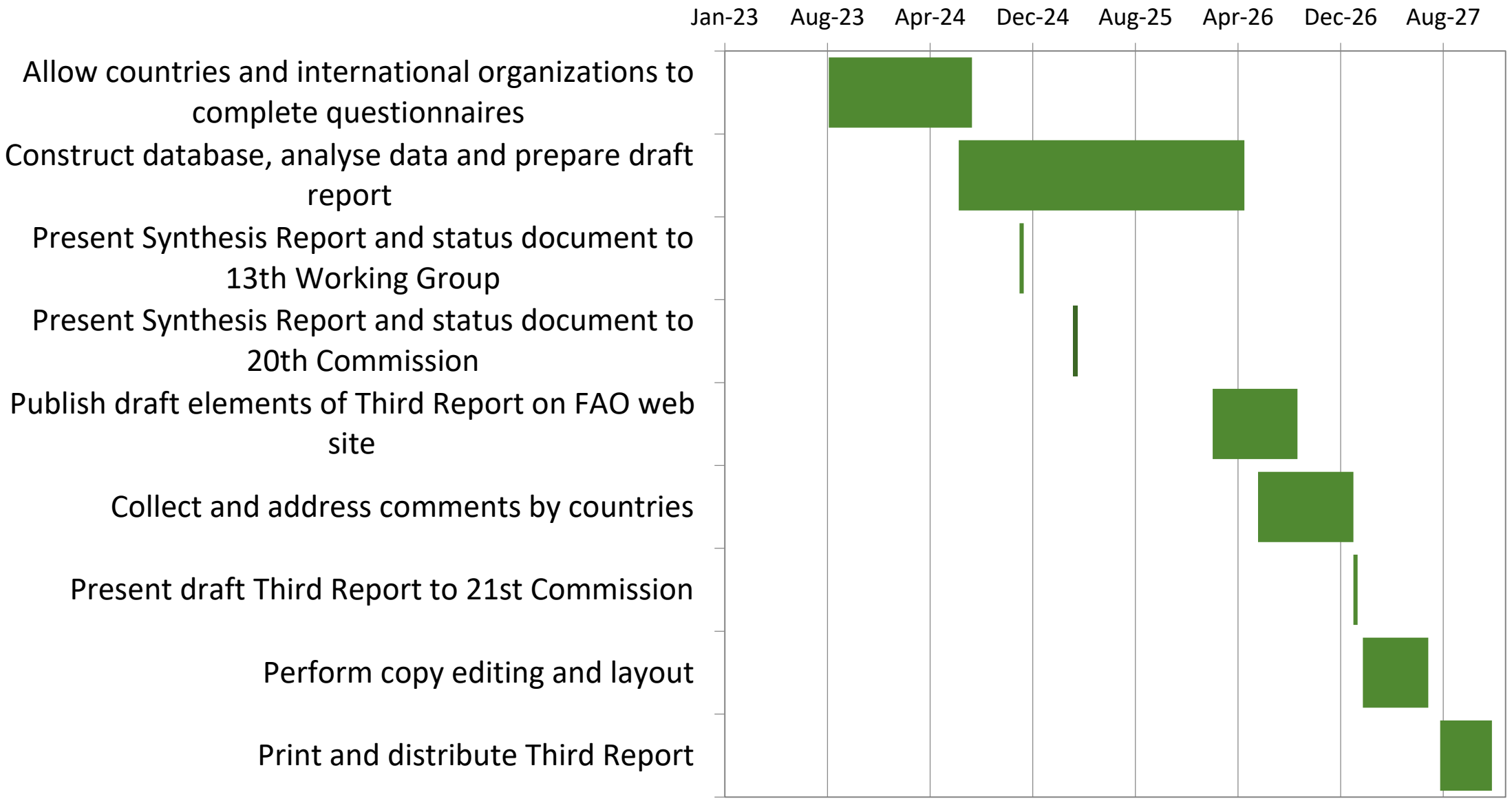


On what information are the reports based?

- Country questionnaires
- Reports from international organizations
- Reports regional focal points and networks
- Individual expert authors
- FAO's Domestic Animal Diversity Information System (DAD-IS)

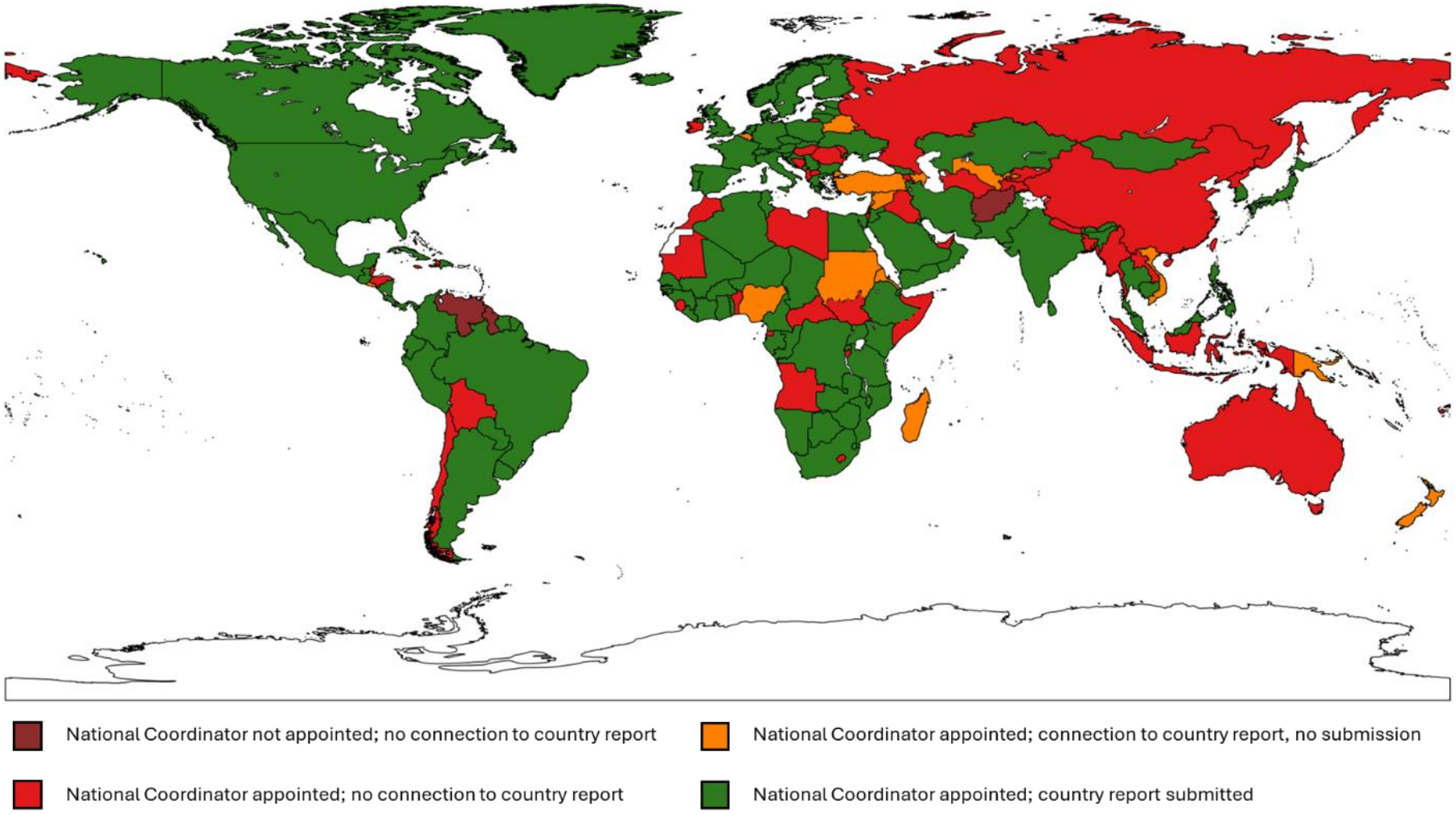


Preparation timeline



Early results

- Questionnaires received from 104 countries
- Reports provided by 11 international organizations
  - including SAVE



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Preliminary results according to region

	Strategic priority area			
Region	Characterization	Sustainable use	Conservation	Institutions
Africa	0.84	0.90	0.65	1.09
Asia	1.11	1.17	0.98	1.17
Europe	1.50	1.38	1.22	1.48
Latin America	0.94	0.92	0.61	0.91
Near East	0.91	0.71	0.67	0.81
North America	1.79	1.43	1.68	1.50
SW Pacific	0.25	0.10	0.18	0.04
World	**1.09**	**1.06**	**0.86**	**1.15**

Explanation: relative level of implementation on a 0 to 2 scale

Summary and conclusions

- Genetic diversity of livestock is critical for current and future food systems
- FAO supports countries in the management of diversity
- FAO monitors the diversity and capacity to manage it
- Third Report on State of World's AnGR is under preparation
  - To be published in 2027
- Preliminary results show slow and heterogenous progress
- Greater efforts are needed to ensure sustainability!

https://www.youtube.com/watch?v=b8nXFBEB4Vc

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SUSTAINABLE DEVELOPMENT GOALS

Thank you